



June 8, 2011

To the office of Tom Coburn, M.D.
U.S. Senator from Oklahoma

On behalf of the Society for Integrative and Comparative Biology (SICB), I would like to publically comment on the recently released report entitled, “Under the Microscope,” which discusses the activities of the National Science Foundation (NSF). The NSF is our nation’s primary agency for funding basic scientific research, and is a world-leading organization. As scientists, the executive officers of SICB have read the report carefully and we take its charges seriously. We agree with the report in the need for a strong, efficient NSF that supports transformative research. However, based on the report’s profound oversimplifications, misleading statements, and inaccuracies, we conclude that this report grossly misrepresents the activities of the NSF and its grantees. For these reasons, our society strongly disagrees with this report.

The basic message of the report is that the NSF funds trivial, duplicative research and inadequately oversees its programs. These charges are not supported by the agency’s history of strong performance, by the analysis of the Office of Management and Budget (OMB), or by any other program assessment.

Overall, the NSF has been lauded as an excellent federal agency. Indiana Governor Mitch Daniels in 2001 called the NSF one of the “true centers of excellence in this government” and noted that the agency deserved to be “fortified and strengthened.” It uses 95% of its budget for research and education, and its efficiency and high quality have been noted in a comprehensive review carried out by the Office of Management and Budget (OMB) under President George W. Bush. In the FY 2006 budget, it was the only agency to receive the highest rating in the OMB’s Program Assessment Ration Tool evaluation. These assessments stand in direct contradiction to the report’s charge that the agency has mishandled billions of dollars. In particular, the report claims that the NSF has left \$1.7 billion of undisbursed funds in expired grant accounts. In reality, these funds represent money that has been obligated for multi-year grants, but that is still unexpended by the grant recipients. This accusation that the NSF fails to recover billions is a significant misrepresentation of the truth.

The report suggests that the NSF funds the ‘whims’ of scientists, and provides anecdotes of research that appears to sound ‘silly’ as evidence. These depictions are grossly oversimplified and are provided without context, trivializing serious basic research. The enterprise of federal basic research in the United States began following World War II, with the goal of making fundamental discoveries without the strict requirement that society realize an immediate, short-term benefit. Basic research aims to create new knowledge and to stimulate new research, serving as a foundation for applications that improve our health, ensure our national security, and grow our economy.

While it is easy to ridicule grants that on the surface sound funny or appear to be not the best use of funds, there are countless examples of basic research that have led to important discoveries and societal benefit. For example, in the 1990s the NSF supported basic information research that led to the founding of Google, a multi-billion dollar company of global importance. It would have been shortsighted to mischaracterize the \$4.5 million grant from NSF as a waste on 'library' research.

This practice of trivializing research also insults the integrity of NSF's peer-review proposal selection process. Scientists compete to become funded by the NSF; the competition is extremely high, and funding rates are low, ranging from 23 to 32% in the period 2001-2010 for all of NSF. When the NSF budget was more restrictive, funding rates have been in single digits. Most proposals are rejected, including many that are rated very highly and are deemed scientifically worthy of pursuit. The peer-review panels that recommend which projects get funded are composed of working scientists, and only projects that are judged most likely to make significant advances are funded. 'Whims,' unoriginal ideas, duplicative research, or poorly formulated projects do not survive the peer review process, nor the scrutiny from the NSF. The report concludes that "evaluating the overall quality of grant application should remain in the hands of scientists with clear NSF guidance," and we emphatically agree.

On the matter of science, technology, engineering, and mathematics (STEM) education, the report implies that the NSF duplicates efforts of other federal agencies, and should not be involved in such activities. Historically, the National Science Foundation Act of 1950 (Public Law 81-507) specifically authorizes the NSF to "support science and engineering education programs at all levels and in all the various fields of science and engineering." We acknowledge that STEM education is an extremely broad area, and indeed the National Science and Technology Council (NSTC) Committee on STEM Education will be examining issues of overlap of federal efforts. However, we contend that the NSF is uniquely equipped to tackle issues of improving STEM education, and its access to frontier science amplifies its effects. It is the dominant agency for research on STEM education, bringing together the best thinkers in K-12 and higher education. Outreach to the K-12 environment is included in many of its research grants, providing educators with direct access to new scientific knowledge. As the nation's preeminent science agency, we believe that the NSF should continue to play a pivotal role in STEM education.

The National Science Foundation is essential to the continuation of the scientific enterprise in the United States across a wide range of disciplines, from neuroscience, to social sciences and particle physics. Over many decades, with the continued input from research scientists and support from both Congress and the White House, NSF has wisely used public funds to improve knowledge and gain an understanding of our world. SICB steadfastly supports NSF and the dedicated staff who labor to carry out the Foundation's mission. The SICB leadership is available to meet with you or your staff and discuss the important role of NSF in the future of U.S. science research and education.

Sincerely,



Kenneth P. Sebens, Ph.D., President
Society for Integrative and Comparative Biology